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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,922	03/08/2002	Takayuki Sano	50233-097	1295

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EXAMINER

RODEE, CHRISTOPHER D

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 04/25/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,922

Applicant(s)

SANO ET AL.

Examiner

Christopher D RoDee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7 and 9-13 is/are rejected.
- 7) ☒ Claim(s) 2 and 8 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

— Claim 6 is indefinite because it is unclear what a "natural gas type Fischer-Tropsch wax" defines. It is unclear if this means that the wax is derived from natural gas or if it has some common characteristics with natural gas. Clarification is requested.

— Claim 11 is indefinite because there is no antecedent basis in claim 1 for inorganic fine powder and it is, therefore, unclear what component of claim 1 is being further limited. Claim 11 has been examined over the art as if claim 1 specified an inorganic fine powder. Claims 12 and 13 are indefinite because of their dependence on claim 11.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Takagi *et al.* in US Patent 5,439,772.

Takagi discloses a magnetic toner for MICR applications. As seen in Examples 3, 4, 8 and 13 (col. 15, l.+), the toner comprises a binder resin composition, 50 weight % of magnetic substances C and D, and a negative charge control agent. The binder resin composition in Example 3 contains a styrene-acrylate copolymer, low molecular weight polyethylene (i.e., wax) fine particles, and a styrene-ethylene graft copolymer (also see col. 4, l. 19-25, l. 52-66; col. 9, l. 29-42). As seen in Table 1, magnetic substance C is a needle-shaped (i.e., acicular) magnetite and magnetic substance D is a octagonal-shaped magnetite. These substances are present in a ratio of 0.25 needle shaped magnetite to 1.0 hexagonal magnetite. This latter magnetite meets the requirements of a granular magnetite noting specification page 7, penultimate line through page 8, line 1. The magnetic toner has an average particle size of 8.8 μm with a σ_r of 6.4 emu/g. The surface of the magnetic toner is treated with hydrophobic colloidal silica (also see col. 8, l. 7-47).

Example 4 has a similar composition except for a different styrene-acrylate copolymer and the use of a positive charge control agent. The magnetic substances are the same. This toner has an average particle size of 11.0 μm with a σ_r of 6.4 emu/g. Examples 8 and 13 have a similar composition to Example 3 except for a different styrene-acrylate copolymer. The magnetic substances are the same. Each Example anticipates the instant claims.

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Claims 1, 3, 4, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Grushkin in US Patent 5,914,209.

Grushkin discloses an MICR magnetic toner having a mixture of hard and soft magnetic particles dispersed in a binder resin (Abstract). Example 1 prepares a MICR toner having a styrene-butyl acrylate resin, a cubic soft magnetite particle (MB22 – see Table 2, col. 8), an acicular hard magnetite (MO4232 – Table 2), a polyethylene wax, and an iron complex dye charge control agent (col. 8, l. 64). The ratio of acicular magnetite to cubic (i.e., granular) magnetite is 0.33 to 1.0 and the total amount of magnetic particles is 40 weight % of the toner. The magnetic toner is mixed with silica surface treating agent to improve flowability. Magnetic particle MB22 has a residual magnetization of 13.9 emu/g while Magnetic particle MO4232 has a residual magnetization of 29.0 emu/g (Table 2). Examples 2, 3, and 6 are similarly applicable to the instant claims with variations in magnetic particle ratios and total magnetic particle loadings that are within the scope of the instant claims. Grushkin states that the wax used in the toner has a sharp melting point of from 85 to 135 °C (col. 8, l. 31-36). The value of 85 °C is disclosed with sufficient specificity to place this value in the artisan's possession. This appears to correspond to a DSC measured melting point as in pending claim 4 because it is a "sharp" melting point indicating an abrupt phase change as would be observed by DSC measurement.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 9, and 10 are rejected under 35 U.S.C. 103(a) as being obvious over Grushkin in US Patent 5,914,209 in view of Hashimoto in US Patent 6,465,144.

Grushkin was discussed above. With respect to claim 5, the reference states that any wax may be used in the toner as long as it has a sharp melting point of from 85 to 135 °C and a melt viscosity of from about 2 cps to about 200 cps at from 100 to 150 °C. The reference does not disclose the Fischer-Tropsch wax of the instant claims.

Hashimoto discloses a Fischer-Tropsch wax for use in a magnetic toner where the wax has a melting point of 45 to 90 °C (col. 31, l. 58 – col. 32, l. 11). The melting point appears to correspond to the DSC heat absorption peak (col. 31, l. 35-57).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the wax of Hashimoto in the invention of Grushkin because Grushkin teaches that the wax used in the MICR toner should have a sharp melting point of from 85 to 135 °C and Hashimoto discloses a specific wax having melting characteristics within this range for a magnetic toner. The artisan would have found it obvious to use the Fischer-Tropsch wax with a melting point of 90 °C because this is specifically disclosed by Hashimoto and is within the scope of Grushkin's melting point teachings. There is a high likelihood of success in this substitution because both references are directed to magnetic toners with similar types of components (e.g., binder resin, magnetic material, and wax).

With respect to claims 9 and 10, Grushkin teaches that the silica is hydrophobic. The reference does not specify how the silica was treated to make it hydrophobic.

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Hashimoto teaches that silicas can be treated with a silicone oil to provide hydrophobicity to the otherwise hydrophilic silica (col. 26, l. 56 – col. 27, l. 63). The additive amount of the silicone oil is 1 to 23 wt. parts per 100 parts of the silica.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Hashimoto's silicone oil-treated silica to provide the hydrophobic silica in Grushkin because Grushkin specifically teaches that a hydrophobic silica is desired and Hashimoto teaches specific silicone oil-treated silicas that provide the reduced moisture absorption and improved charging character to a magnetic toner. Because Grushkin uses the silica additive in an amount of 1.2 wt % in Example 3, because the artisan would use Hashimoto's silica in similar amounts, and because Hashimoto teaches that the silicone oil treatment amount of the silica is 1 to 23 wt. parts per 100 parts of the silica, the artisan would have found it obvious to provide the toner with about 0.01 to about 0.23 wt % silicone oil to the toner as provided through the silicone oil-treated silica.

Claims 11-13 are rejected under 35 U.S.C. 103(a) as being obvious over Grushkin in US Patent 5,914,209 in view of JP 3-125157. Claim 11 is not properly dependent as noted above in the section 112, second paragraph, rejection. This claim has been considered as if an inorganic fine power were recited in claim 1.

Grushkin was discussed above. The reference discloses the usefulness of adding a hydrophobic silica such as R972 to the surface of the toner (col. 9, l. 34-51; col. 10, l. 16-19). Such an additive improves flow, blade cleaning, and toner blocking temperature, as well as assisting in toner particle charging. The R972 additive is the same as used in the instant specification's examples and thus appears to have the requisite BET surface area (e.g., spec. p.

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26, l. 22; p. 35, l. 9). In Grushkin, this additive appears to be the same polarity as the toner because it is stated as increasing the negative polarity of the toner (col. 10, l. 16-19). The reference does not disclose the combination of an inorganic additives where one additive has the same polarity as the toner and the other has opposite polarity to that of the toner.

JP 3-125157 discloses adding a combination of positively and negatively charged silica particles to the surface of a toner. This combination prevents reduced image density, fogging, and scattering while maintaining good storage performance and flowability. As seen on page 3, one of the silicas is R972.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add a positively charged silica to the R972 external additive silica of Grushkin because the JP document teaches that a combination of positively and negatively charged silicas give improvements in image density, fogging, and scattering while maintaining good storage performance and flowability. Even if the R972 in Grushkin is not negatively charging, the JP reference clearly teaches the benefits of adding both a positively and negatively charged silicas to the surface of a toner and the artisan would have found it obvious to substitute a disclosed or suggested combination of these silicas from the JP reference to Grushkins MICR toner to give the noted benefits.

Allowable Subject Matter

Claims 2 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 6 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims. Kubota in US Patent 5,780,197 teaches that natural gas-derived Fischer-Tropsch waxes have viscosities outside the scope of that required by Grushkin (see Kubota: Abstract & col. 4, l. 56-58; Grushkin: col. 8, l. 35-36). Thus, there is no motivation to use this wax in Grushkin. Takagi is limited in its disclosure to polyolefin waxes and does not suggest the Fischer-Tropsch waxes of certain dependent claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kubota is cited for the reasons given immediately above. Eguchi is cited for its disclosure of polyethylene wax characteristics.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher D RoDee whose telephone number is 703 308-2465. The examiner can normally be reached on most weekdays from 6 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703 308-2464. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703 872-9310 for regular communications and 703 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-0661.

cdr
April 15, 2003


CHRISTOPHER RODEE
PRIMARY EXAMINER